

REMARKS

The Office Action dated March 12, 2004, has been received and carefully noted. The amendments made herein and the following remarks are submitted as a full and complete response thereto.

Claims 1, 4, 7-9, and 11 have been amended, and claims 2-3, 6, and 10 have been cancelled without prejudice. New claim 12 has been added. Applicants submit that the new claims as well as the amendments made herein are fully supported in the specification and the drawings as originally filed, and therefore no new matter has been added. Accordingly, claims 1, 4-5, 7-9, and 11-12 are pending in the present application and are respectfully submitted for consideration.

Claims 2-8 and 10-11 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Applicants submit that the outstanding claims have been amended to be in compliance with U.S. patent practice, and therefore respectfully request the rejection to be withdrawn.

Claims 1-3 and 6-8 were rejected under 35 U.S.C. § 102(b) as being anticipated by Takahashi (JP 11-251772, "Takahashi"). Claims 2-3 and 6 have been cancelled, and therefore the rejection regarding these claims is now moot. Claims 7 and 8 have been amended to depend on new independent claim 12. Thus, Applicants respectfully submit that claim 1 recites subject matter that is neither disclosed nor suggested by the cited prior art.

Claim 1 recites a heat-dissipation structure of a plasma display panel device including a plasma display panel and a drive circuit for driving the plasma display panel.

The heat-dissipating structure comprises a plurality of circuit boards, and electronic components making up the drive circuit and mounted separated on the plurality of circuit boards. The plurality of circuit boards are arranged approximately in parallel to each other, and an electronic component with heat-generating property out of the electronic components making up the drive circuit is mounted on a required circuit board out of the plurality of circuit boards. The required circuit board is supported by a metal-made build-up frame thermally-conductively installed on a metal-made casing of the plasma display panel device and being in contact with at least part of the electronic components with the heat-generating property mounted on the required circuit board.

Accordingly, at least one of the essential features of the present invention is “wherein an electronic component with heat-generating property out of said electronic components making up the drive circuit is mounted on a required circuit board out of the plurality of circuit boards, and wherein said required circuit board is supported by a metal-made build-up frame thermally-conductively installed on a metal-made casing of the plasma display panel device and being in contact with at least part of the electronic components with the heat-generating property mounted on the required circuit board.” As such, the present invention results in the advantage of performing efficient heat-dissipation in a plasma display panel device.

It is respectfully submitted that the prior art fails to disclose or suggest the elements of the Applicants' invention as set forth in at least claim 1, and therefore fails to provide the advantages that are provided by the present invention.

On page 4, second paragraph of the Office Action, the Examiner took the position "Takahashi discloses [the] required circuit board being supported by a metal-made build-up frame 5 thermally-conductively installed on a metal-made casing of the PDP and being in contact with at least part of the electronic components with the heat-generating property mounted on the required circuit board (see Fig. 2)," with respect to claim 3 of the present application. The Examiner further took the position, on the third paragraph that "Takahashi discloses part of the electronic components with a heat-generating property being mounted on said required circuit board, and another electronic component with the heat-generating property being mounted on a circuit board other than the required circuit board while being in thermal-conductive contact with a metal-made casing of the PDP (see Figs. 2, 3B and 3C; and paragraphs [0005] and [0015])," with respect to claim 6 of the present application.

Applicants respectfully disagree with the Examiner's positions and submit that each and every element recited within claim 1 is neither disclosed nor suggested by Takahashi. In particular, Applicants submit that the heat-dissipation structure of a plasma display panel device as recited in the present application is clearly distinct from that which is illustrated by the cited prior art. Specifically, it is submitted that the cited prior art fails to disclose or suggest at least the elements of "wherein an electronic component with heat-generating property out of said electronic components making up the drive circuit is mounted on a required circuit board out of the plurality of circuit boards, and wherein said required circuit board is supported by a metal-made build-up frame thermally-conductively installed on a metal-made casing of the plasma display

panel device and being in contact with at least part of the electronic components with the heat-generating property mounted on the required circuit board.”

It is submitted that Takahashi merely discloses a member 5 but does not disclose or suggest a heat conduction board that is a metal-made build-up frame. Further, the member 5 of Takahashi is for radiating heat generated in PDP 4. However, Takahashi fails to disclose that the member 5 is for radiating heat generated in the electronic components 7aa, 7ba, especially, generated in an electronic component with heat-generating property.

Moreover, Applicants submit that Takahashi fails to show that the electronic components 7aa and 7ba are electronic components with heat-generating property, the circuit board 7a is thermally-conductively supported by the member 5, the electronic components 7aa, 7ba are in contact with the member 5, and that the casings 2 and 10 are metal-made casings.

Therefore, it is submitted that Takahashi fails to disclose or suggest each and every element recited in claim 1 of the present application, and therefore is allowable.

Claims 4-5 and 9-11 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Takahashi in view of Ono (U.S. Patent No. 6,525,786, “Ono”). Claim 10 has been cancelled and therefore the rejection is now moot.

As claims 4-5 depend from claim 1, Applicants submit that each of these claims incorporates the patentable aspects therein, and therefore are allowable for at least the reasons set forth above with respect to the independent claim. As discussed below, Ono fails to cure the above-noted deficiencies of Takahashi.

Applicants respectfully submit that each of claims 9 and 11 recites subject matter that is neither disclosed nor suggested by the cited prior art.

Claim 9 recites a heat-dissipation structure of a plasma display panel including a plasma display panel and a drive circuit for driving the plasma display panel. The heat-dissipation structure comprises electronic components making up the drive circuit and mounted separately on both faces of a circuit board, wherein the circuit board having both the faces on which the electronic components are separately mounted is supported by a metal-made build-up frame, installed thermal conductively to a metal-made casing of the plasma display panel device and being in contact with part of at least the electronic components with heat-generating property out of the electronic components mounted on the circuit board.

Applicants respectfully submit that each and every element recited within claim 9 is neither disclosed nor suggested by Takahashi and/or Ono, taken alone or in combination. Specifically, it is submitted that the cited prior art fails to disclose or suggest at least the element of "wherein said circuit board having both the faces on which said electronic components are separately mounted is supported by a metal-made build-up frame, installed thermal conductively to a metal-made casing of the plasma display panel device and being in contact with part of at least the electronic components with heat-generating property out of the electronic components mounted on the circuit board."

Ono merely shows a plurality of electronic components 213 are distributed and attached to both sides of the circuit board 203. However, the display of Ono is a liquid crystal display rather than a plasma display panel as recited in the presently claimed invention.

Accordingly, Applicants submit that neither Takahashi nor Ono disclose or suggest each and every element recited in claim 9 of the present application, and therefore is allowable.

As claim 11 depends from claim 9, Applicants submit that claim 9 incorporates the patentable aspects therein, and is therefore allowable for at least the reasons set forth above with respect to the independent claim.

New claim 12 recites, in part, "wherein part of the electronic components with heat-generating property out of said electronic components making up the drive circuit is mounted on a required circuit board out of said plurality of circuit boards, and another electronic component with the heat-generating property is mounted on a circuit board out of said plurality of circuit boards other than said required circuit board while being in thermal-conductive contact with a metal-made casing of the plasma display panel device. "

Applicants respectfully submit that each and every element recited within claim 12 is neither disclosed nor suggested by the cited art, and therefore is allowable.

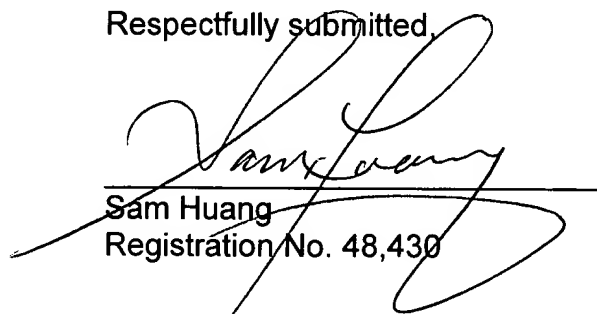
As claims 7 and 8 depend from claim 12, Applicants submit that each of these claims incorporates the patentable aspects therein, and therefore are also allowable for at least the reasons set forth above with respect to the independent claim.

In view of the above, Applicants respectfully submit that each of claims 1, 4-5, 7-9 and 11-12 recites subject matter that is neither disclosed nor suggested in the cited prior art. Applicants also submit that the subject matter is more than sufficient to render the claims non-obvious to a person of ordinary skill in the art, and therefore respectfully request that claims 1, 4-5, 7-9, and 11-12 be found allowable and that this application be passed to issue.

If for any reason, the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact the Applicants' undersigned attorney at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper has not been timely filed, the Applicants respectfully petition for an appropriate extension of time. Any fees for such an extension, together with any additional fees that may be due with respect to this paper, may be charged to counsel's Deposit Account No. 01-2300 referencing Attorney Docket No. 107156-00069.

Respectfully submitted,



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